

## D. Report on New Zealand, Western Polynesia, New Caledonia, and Fiji

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### INTRODUCTION

I have published summaries of archæological work done in the South Pacific up to and including 1959 and have reviewed its implications for the culture history of the region (Golson 1959 *a* and *b*). Here I bring the 1959 papers up to date for the areas specified in the title of this paper, by discussing subsequent work in New Caledonia, and by taking cognizance of new work done, and new hypotheses advanced by scholars in adjacent areas.

The region under discussion in the traditional view straddles in somewhat irrational fashion two major and two minor culture areas, Melanesia and Polynesia, and within the latter Western and Eastern Polynesia. Archæological and other studies since the war, however, have shown the inapplicability of these distinctions with any rigidity to the prehistoric situation, and demonstrate a community of cultural tradition over a significant part of the area in question. Since the re-analysis and re-definition of the terms in question is only now becoming possible, I shall still employ them in this discussion to signify certain differences that, as will be seen, are basic in the culture history of the region.

### Fiji

Fiji is from the point of view of culture historical studies the Cinderella island of the South Pacific. To the east the neighbouring islands of Polynesia have been the object of intensive ethnological survey and description by workers under the auspices of the Bishop Museum. To the west at least some of the islands of Melanesia have a good ethnological literature. The large and varied island group of Fiji still awaits a record as comprehensive and reliable. Here, the archæologist is denied the sound base-line for his prehistoric studies which ethnological description of still living or still remembered cultures provides elsewhere. This is all the more serious in that Fiji is a culturally complex group, standing on what has been looked on as a vital frontier in the culture areas of the Pacific. Besides archæological work, therefore, a good case can be made for ethnological work in Fiji while some of the record is still recoverable.

The conditions for work in Fiji are favourable. There is a small but well-organized museum in Suva that acts as a centre for ethnological and archæological collection and record; and the Fiji Society, with its *Transactions*, reflects the local interest. For the archæologists, as Gifford's report on his 1947 expedition makes clear (1951), sites are numerous and often well-provided with locally obtainable traditional information. The sites that Gifford visited in the course of his preliminary reconnaissance were generally known to the local inhabitants as former villages.

Archæologically they were characterized by the presence of shell and potsherds and commonly of house-mounds, rectangular and/or round. Some of the village sites were ditched for defence. In some areas of Fiji, for example the Rewa river delta of S.E. Viti Levu, ring-ditch forts are numerous and provide good prospects for excavation.

Gifford's expedition, the only one to date, excavated two sites in northern Viti Levu: site 17, Navatu, to the east; site 26, Vunda to the west. Both sites were stratified into two layers, an upper one of shell, a lower one almost completely devoid of shell. At both, cultural material was recovered to considerable depths—at Navatu to nearly 12 ft., at Vunda to 10½ ft. Artifacts, apart from pottery, were extremely rare. Four adzes were found at Navatu, two in each layer; at Vunda two adzes came from the lower layer.

As to ceramic analysis, Navatu is the more important site: its importance rests in variations from level to level in the proportions of decorated to undecorated pottery, and within the decorated pottery of incised to relief decoration. In the lowest levels relief decoration is predominant to the virtual exclusion of incised, and decorated pottery is as numerous as undecorated; in the upper levels incised decoration is more common than relief, but undecorated pottery is much more frequent than both.

The incised motifs are all geometric and some of them are seen on modern Fijian ware. Gifford found it impossible to say whether the rare incised ware of the lower levels is an intrusion due to disturbance from the upper levels, or whether it constitutes an earlier tradition of incised decoration.

Certain types of relief decoration occur at all levels, some indeed in modern Fijian pottery. But confined almost exclusively to the lowest levels, where indeed it predominates as a decorative type, is Gifford's 'wavy relief, angular or curvilinear'. None of this ware was found elsewhere, either by excavation at Vunda, or on the surface of unexcavated sites. It would therefore appear to represent a genuinely ancient ceramic tradition. The radiocarbon date for the relevant levels is 46 B.C.  $\pm$  500.

Though the technique of manufacture and decoration is the paddle and anvil technique widespread in and round the Pacific at large (Solheim 1952 *a, b*), this specific decorative type remains without close parallel. It becomes impossible therefore to fit this early stage of Fijian prehistory into the general cultural framework being built up for surrounding areas.

The six adzes recovered at both sites seem all of the type we are accustomed to call Melanesian—fully polished, with rounded, oval or lenticular cross-section. Certainly the pottery found in the upper levels at both sites with its similarities, particularly in decoration to historical Fijian and New Hebridian ware, might be looked upon as Melanesian, in the sense of ancestral to the historic pottery of the area. But in the absence of detailed typological analysis based on more extensive collections, this can be only a very tentative hypothesis.

Some interesting information comes from study of the excavated bones. Cannibalism and the domestic pig are present in the lower layer, and thus the early period of settlement at site 17. The chicken, wild or domesticated, comes in right at the end of this period. Most of the dog bones belong to the upper layer. At neither site

17 nor 26 is there any change throughout the deposits in the representation of sorts of fish.

To conclude this section on Fiji, attention is drawn to the occurrence on the surface of a sand-dune site, near Sigatoka in S.W. Viti Levu, of pottery with incised decoration of a type so far unique for Fiji, whose closest parallels are westwards in our next area of discussion, New Caledonia.

#### NEW CALEDONIA

New Caledonia is a rich and favourable field for archæological research. There is a good base-line for the archæological investigator in the ethnological works of Sarasin, Leenhardt, Guiart, and others. The small Musée Néo-Calédonien provides a centre for the collection and storage of ethnological specimens and archæological finds; its director, M. Luc Chevalier, does a certain amount of archæological reconnaissance and recording, and his knowledge and experience is freely put at the disposal of visiting workers. The small Société des Études Mélanésiennes is a focus for local, amateur ethnological effort and publishes a little journal, *Études Mélanésiennes*.

Sites of archæological interest are varied and numerous, comprising petroglyphs, mounds for habitation and for other, less easily discoverable purposes, stone heaps and alignments, cultivation terraces, and kitchen middens, rich in pottery. There appears to be no opposition from the Melanesian inhabitants to any type of site being investigated.

The material culture to be expected from excavation consists of pottery, polished stone adzes and axes, mace-heads and sling-stones, flake tools in a variety of stone, and shell artifacts like bracelets, scrapers, fishing gear and money pieces. In excavations prosecuted up to date pottery has been by far the commonest material in occurrence. Shell artifacts are not infrequent; indeed on some sites, like Gifford's site 26 Oundjo, common. Though flaked stone is known on most sites, discoveries of expected types of stone artifact by excavation have been disappointing; four adzes and one axe only were recovered from Gifford's eleven sites and not a single example in my own excavations.

Gifford's work of 1952, published in 1956, was exclusively directed to the excavation of kitchen midden deposits, the sites being mainly coastal (9 out of 11) on both sides of the central chain of the main island (La Grande Terre). Most of the sites were between 2 ft. and 4 ft. deep, but site 50 had cultural material down to 7½ ft. Stone, pumice, coral and shell formed, with sand or humus, the principal constituents of the sites. The Auckland University excavations of December 1959 to February 1960 took place on the Ile des Pins, south of New Caledonia proper, and were partly concerned with coastal sites of similar type. The major effort was directed to the excavation of the sea-eroded site reported by M. Lenormand in 1948 under the name of St. François-près-Vao, but called here after the beach on which it occurs St. Maurice. A neighbouring site, Kapume, was tested. A preliminary report of this work has been issued in cyclostyled form and is in press with *Études Mélanésiennes* at Noumea. Detailed analysis of shell and soil samples and of the recovered artifacts is ready to start at the Australian National University.

Though varying in date (A.D. 73 site 50, A.D. 1569 site 51), depth, composition and detail of artifactual assemblage, 10 of Gifford's 11 sites are characterized by the presence of the same general ceramic tradition. This consists in a great preponderance of undecorated sherds (93%–97% by weight) and, on the evidence of rim pieces, of vessels with vertical sides and rounded lips. Amongst the decorated pieces both incised and relief ornamentation are found. The relief decoration is in technique and motif compared explicitly with the pottery from the later levels of the Fijian sites. A great variety of incised decoration is attested, evidently the product of local styles. Gifford, in the absence of any great knowledge of New Caledonian pottery in the historic period, makes general comparisons of the motifs with those seen in Soloma Island and New Hebridean ware, with which general kinship was claimed on the part of Fijian incised ware. Perhaps, here again, we are dealing with a generalized 'Melanesian' ceramic tradition.

The pottery recovered from the site at Kapume, Ile des Pins, and collected on the surface here and at other sites in the south-west and north-west of the island, has essentially the same character.

The eleventh of Gifford's excavated sites, No. 13 in the middle of the west coast of La Grande Terre, has a quite different character. Here vessels with out-turned rims preponderate over vessels with straight rims, flat lips over rounded ones. In addition, decorated pottery constitutes 37% of all sherds and of these decorated sherds 34% are incised, only 3% in relief.

Furthermore the incised pottery of site 13 constitutes quite a distinct group, with a type of decoration not found on any other site visited or excavated by Gifford, with the exception of three sherds found on the surface of three sites. The decoration in question is extremely mannered and well-executed. Apparently covering the whole surface of the vessel, and sometimes found on both sides of sherds, it consists of continuous and dotted lines forming circles, arcs, lozenges, squares, diagonals, and combinations of these. The decoration is applied to vessels some of which exhibit features totally unknown on the other sites—flat bases, decorative flanges encircling the vessels below the rim, flat sectioned handles, bottle-like necks.

The distinctiveness of site 13 is emphasized by the radiocarbon dates, which, though they represent a stratigraphic inversion (846 B.C.  $\pm$  350 at a depth of 24–30 inches, 481 B.C.  $\pm$  400 at a depth of 30–36 inches, a discrepancy, however, within the standard deviations), do testify to the great antiquity of the site and of the cultural traditions which it represents.

Gifford's excavations at site 13 served to illuminate the discoveries made a few years previously on the Ile des Pins and first reported in 1948 by Lenormand in *Études Mélanésiennes*. Near the village of Vao, abundant pottery was being actively eroded out at the beach of St. Maurice of a type hitherto unknown in New Caledonia, but now seen to be identical with the pottery of site 13. It was the purpose of the Auckland University excavations of 1959–60 to undertake fairly extensive investigation of the site in order to recover collections of the pottery in full stratigraphic and cultural context. The site in brief proved to have a maximum depth of 30 in. and the fragmentary condition of the pottery in the top 12 in. which is as compatible with a theory that the surface of the site had been continually dug over

in the course of garden cultivation, and with that of intensive and continuous occupation of the spot.

Numbers of fragmentary shell bracelets were found; also perforated univalves of the type that Gifford thought might have been used as paring knives. Stone was not uncommon and in great variety, including a few pieces of what appears to be obsidian, allegedly not found in New Caledonia according to Gifford in his comment about the single flake recovered by him, significantly from site 13. Unfortunately virtually all the stone was in the form of simple flakes and very few fragments of polished artifacts were found. None of these was definitely part of an adze, so that we remain ignorant of the adze fashions of the makers of the distinctive pottery, which it had been one of the Auckland group's major aims to discover.

Almost every decorative and formal feature of the pottery of site 13 was reproduced at St. Maurice. And St. Maurice proved as unique on the Ile des Pins as site 13 had on the mainland. No date is yet available for the St. Maurice site, but a relative antiquity is established by the common presence of the extinct landsnail *Placostylus senilis* side by side with the still extant *P. souvillei*, which alone appears at the neighbouring site of Kapume.

Faunal remains have proved scarce on all New Caledonian excavations so far. Gifford reports man, rat, turtle, dugong, seal and bird. At St. Maurice a few bird, turtle and fish bones were found.

### *The Tumuli of New Caledonia*

Scattered over the interior plateau of the Ile des Pins are a large number (possibly over 300) of earth mounds, the significance of which is unknown to the present inhabitants of the island and to those few Europeans who have dug into or asked questions about them. Aurois, the French geologist to whom we owe our fullest published description, compared them to the stone mounds of the plateau of southern New Caledonia.

It was one of the aims of the Auckland expedition to undertake their investigation. An area free of bush and scrub was selected for intensive mapping. The survey showed that, contrary to previous claims, the mounds were placed in no regular formation of lines, avenues or circles. It also revealed the presence of two types, a rare low platform type mound, and the common inverted bowl-shaped mound 60–100 ft. in diameter and 6–10 ft. high. In this latter group there was a small subgroup characterized by a more pyramidal shape and a 'stone' circle at the crest.

One mound of each type was selected for excavation. The excavation of the low platform mound was very limited and made no certain discoveries at all, except that the mound was artificial. The two other mounds revealed the presence at the core of each of a block of hard white material like concrete, circular in form and surrounding a central hole. In the case of the pyramidal mound (tumulus 5) the 'stone' circle on the crest proved to be the outcropping top of the concrete block which had the form of a massive cylinder, 10 ft. high, and occupying the entire centre of the mound down to the old ground surface. The block consisted of three parts and was probably constructed in three stages—a heavy base, a central column

and a basin-like upper section, the rim of which formed the surface outcrop. The indications were that this basin had been replaced at some later stage by a similar basin within its predecessor and tangential to it on one side. This replacement could have taken place immediately to judge by the similarity of the analysis of the concrete samples. These basins had each its own hole central to itself and penetrating the bottom of the basin into the central cylinder. In addition, the later basin had a series of holes in an arc at one side of the central hole.

The normal tumulus investigated, No. 121, had a smaller concrete block, 5-6 ft. in diameter, completely enclosed in the body of the mound and  $2\frac{1}{2}$  ft. below its surface.

What purpose did the holes serve? We called them during excavation 'postholes' and looked upon the concrete blocks as anchors. But it would be difficult to sustain this hypothesis. The two central holes of tumulus 5 are extremely irregular, having a minimum diameter of about 6 inches. We discovered no definite signs of a posthole in the body of the mound at tumulus No. 121, but one of four disturbances noted and plotted at the surface of the mound and interpreted as due to roots was found to coincide in plan with the hole at the centre of the concrete block.

There was no attendant feature at either site to help to explain the purpose of the mounds or the identity of their authors—no artifacts, no other structural evidence. Associated with both concrete blocks, however, were a few shells of the landsnail *Placostylus*. At tumulus No. 121 with its modest central block both the extinct *P. senilis* and the living *P. souvillei* were present. At the more grandiose structure No. 5 only *P. souvillei* was found.

Near the airstrip at the northern end of the central plateau of the Ile des Pins, the central concrete cylinder of a mound (our No. 126) was accidentally exposed by digging for road metal. The observations of M. Chevalier of the Musée Néo-Calédonien on this mound and a neighbouring one investigated at the same time are in substantial agreement with those made above.

Chevalier's observations are made in a paper, to be published in *Études Mélanésiennes*, which reports the discovery of identical mounds on the mainland of New Caledonia where digging for roadworks exposed concrete cores accompanied by *Placostylus* shells at two mounds at Paita just north of Nouméa. Further search in the area has revealed the presence of 12 other tumuli in the area. There are doubtless more, their presence hitherto unrecognized perhaps because they were regarded as unusually large house-mounds.

Both M. Chevalier and myself have reports on the material of the blocks submitted in the one case to Paris (Laboratoire du Service des Mines), in the other to London (D.S.I.R. Building Research Station).

The French laboratory did a quantitative chemical analysis of four samples (two exterior, two interior) of concrete from two mounds, one on the Ile des Pins (tumulus No. 126), one on the mainland. The English tests, on four samples, one from tumulus 121, one from tumulus 126, two from tumulus 5 (newer and older concrete), were examined for their mineralogy and petrology by their section microscopy and differential thermal analysis. I quote below with acknowledgments the conclusions to Mr Midgley's report:

The samples are of a calcite cementing haematitic ironstone. Samples 1 (tumulus 121), 3 and 4 (tumulus 5, older and newer material) are very similar, varying in the amount of ironstone fines. Samples 3 and 4 from the same tumulus are almost identical. Sample 2 (tumulus 126) is different in that it contains shell and coral fragments together with ironstone pebbles cemented by calcite mud.

From this examination it is suggested that the materials are of a lime-mortar or concrete, with ironstone and coral as aggregate. It cannot be established with certainty if the lime was burned and then run to a 'putty' before mixing or if the coral was ground to a mud. However the general appearance suggests that on balance the lime had been burned.

The mystery of the 'tumuli' is thus, despite this spate of activity, as great as ever. Who were these concrete makers of New Caledonia and what the function of their constructions? Native tradition is silent and the archaeologist as yet as ignorant. The only datable material, on the assumption that they are contemporary with the building of the tumulus, are the shells. But the shells are heavily crystallized and the task of preparing them is tedious and slow.

It is, of course, difficult to resist the temptation of equating the tumulus builders with the makers of St. Maurice ware. This is, however, pure speculation. More certainty about the latter is to be gained by following the trail in another direction.

#### WESTERN POLYNESIA

Both Tonga and Samoa, the major islands of Western Polynesia are fairly well documented ethnologically. Gifford and McKern did surveys for the Bishop Museum in Tonga, covering traditional social and political organization, place names and legends, surface archaeology, and material culture (the last unpublished). For Samoa, Buck published on material culture, and there are publications from other writers on social organization, legends and traditions. In addition, in both island groups today, many elements of the old culture are still very much alive, while particularly valuable knowledge of the traditional affiliations of archaeological sites is available. This has a corresponding disadvantage, in that some sites are at present unavailable for excavation because of local feeling in their regard. These in the main are known burial sites.

No museum or archaeological service is present in either of the two territories under discussion. The Tongan government has never raised objections to excavation, provided that the list of sites to be examined is submitted for its approval, and further that certain canons of conduct are respected, particularly in the case of burials or other human remains uncovered in the course of digging. The attitude of the independent Samoan administration to archaeological work is as yet unknown, but, to judge from experience before independence, may be expected to be no less favourable.

#### *Tonga*

McKern's work on the archaeology of Tonga published in 1929 was mainly concerned with surface sites—mounds and platforms of various types for which local intelligence provided names, information as to function and sometimes genealogical dates. These structures served for the repose of chiefs, for the catching

of pigeons, for burials of importance and apparently for the foundations of houses. From the information given by McKern and the five weeks' survey conducted on Tongatapu by the writer in late 1957, few of the mound and platform types are specialized in function, though no type can, in practical terms, or does in the light of tradition, fulfil all. Thus a low rectangular platform bounded by dressed coral limestone slabs could be either a sitting place, a house site or perhaps for burial—but not a pigeon mound; large elongated mounds with rounded tops might have been for pigeon catching or for burial, but hardly for habitation. Valuable results may be expected from more intensive surveys in Tongan field archaeology, illuminated by proper collection of the relevant traditions.

The same considerations apply to the sites, fortified by ditch and bank, which McKern describes from Vava'u and especially Tongatapu. The occurrence of superficially similar fortification in Fiji and the closeness of contact between Tonga and Fiji, claimed for at least the terminal stages of S.W. Pacific prehistory, pose a problem of some importance. The general claim is that the fortifications are in the main late and represent a change in the settlement pattern from dispersed homestead to nucleated village in the unstable political conditions that followed sustained European contact in the 19th century. But the old royal village of Mu'a is protected by identical defences that tie in with an old shoreline of the 14th century.

McKern reported in his 1929 publication on the trial excavation of a number of kitchen middens on Tongatapu and neighbouring islets, though no record of such sites is included in his site survey. The writer's recent work suggests that habitation sites of this character are more frequent than has been suspected. Commonly with an unbroken cover of grass or mould, they may be overlooked or misinterpreted as insignificant examples of the mound and platform types discussed above. Fortunately examples are here and there betrayed by the appearance of shells in road cuttings or gardens that have adventitiously disturbed them. In any case on a coralline island like Tongatapu any irregularity of surface must be a cause for archaeological suspicion.

My excavations in 1957 were restricted to sites of this type, as the major task was to recover artifactual material in quantity. But the restriction would have been imposed on me by the very size of the task represented by a Tongan mound or platform site and the fact that the most archaeologically attractive of these, the major chiefly mounds (*fa'itoka*) and especially the impressive royal tombs (*langi*), were for reasons already given unavailable for excavation.

The most important sites tested were two of McKern's sites: one at Mu'a in Nuku'alofa. At Mu'a a trench 10 ft. by 5 ft. was sunk into an extensive level and stratified midden deposit, 2½ ft. deep and rich in shell, extending to the edge of the old shoreline to which reference has been made. At the Manga'ia mound a very limited excavation (6 ft. by 3 ft.) was made on the line of a proposed drain for the offices of the Seventh Day Adventist Church which owns the site. However in (1959), the building of a church on top of the mound made possible (thanks to the co-operation of the Seventh Day Adventist authorities) more extensive excavations by Mr and Mrs T. L. Birks of Auckland. They opened up an area of about 750 square ft. in the form of two trenches crossing at right angles. Stratification is poorly developed at the Manga'ia mound, though depths of up to 4 ft. are attained,



but evidence of structures in the subsoil shows that the site was in at least one phase an actual living site. It is as yet uncertain whether the mound itself grew in the course of habitation or whether it was of deliberate build.

Virtually the only artifact material to be discovered at both sites was pottery, and in quantity. As with McKern, a small amount of this pottery is decorated (at our sites less than 1%), and amongst the decorated pottery perhaps 25% carries ornamentation that in technique and motif bears close resemblances to the distinctive decorated pottery of Gifford's New Caledonian site 13 and the St. Maurice pottery at the Ile des Pins. The flat lips characteristic of the New Caledonian pottery in question are also predominant amongst the Tongan ware.

It is obvious from the general survey that accompanied these excavations that pottery is a common feature of Tongan archæology, and possible, on the basis of all the observations made, that all the pottery belongs to the same general ceramic tradition. Certainly no palpably different ceramic group is in evidence, as is the case with the postulated 'Melanesian' pottery of New Caledonia.

Unfortunately none of the excavations produced pottery in association with other artifactual types known from random finds to belong to the material of Tongan prehistory. The nearest approach was made in a small area of the 1955 excavations at the Manga'ia mound (unable unfortunately to be extended), where worked but fragmentary stone and bone was found. It is thus impossible directly to relate the ceramic type with the other important diagnostic type of Tongan—and Polynesian—prehistory, the adze.

On a number of grounds, however, the hypothesis may be advanced (though it is badly in need of substantiation), that the adzes that belonged to the pottery makers were what, in Polynesian adze typology, we may speak of as the West Polynesian types, 2C and 4E in Duff's revised classification (Duff 1959). The relevant considerations are: *i.* that in museum collections of Tongan adzes these are the predominant, if not the exclusive types; *ii.* that in the collection of about 30 adzes kept at Tupou College on Tongatapu, all of them with good reason to be thought of as of definitely Tongan localization these are the exclusive types; *iii.* that on the islets of Onevao and Velitua east near Nuku'alofa, where pottery and adzes are not uncommonly found at the base of the sea eroded banks, only these types are represented.

In addition to the necessity of validation, the assumptions made above about the unitary nature of both Tongan ceramic and Tongan adze traditions, there is an obvious need to establish, on the basis of more extensive excavations of kitchen midden and habitation sites, a ceramic sequence for Tongan prehistory. It is apparent, for example, that not all the rim types recovered by McKern have been produced by the later excavations, in particular the so-called grooved rim.

Particularly urgent is the documentation of prehistoric fishing gear in Tonga, and in Western Polynesia in general. At European contact Tonga and Samoa in contrast to Eastern Polynesia lacked bait-hooks, other kinds of fishing being emphasized, particularly lure-hook fishing with bonito lures of the general type known throughout Polynesia. On a number of grounds, such as recent discoveries in the Marquesas (Suggs 1960) and the presence of bait-hooks in some neighbouring island groups (Anell 1955), one suspects that this was not always the case,

and indeed a fragment of a one-piece bait-hook of pearl-shell was picked up from an eroded sea-bank in 1957. The Ha'apai group of atolls north of Tongatapu might in this instance be a profitable field of search, as a place where fishing must always have played a major role in the economy.

The faunal remains recovered by the excavations are currently being examined. Radiocarbon dates are still awaited.

### Samoa

The field monuments of Samoa bear an obvious relationship to those of Tonga, though they are typically rendered in stone and not in earth. There are pigeon mounds, platforms and pavements described as burial sites, and numbers of cairns and stone rows and walls connected with the clearance of land for cultivation. But the most persistent feature of Samoan field archaeology, at least on Upolu where my five-week survey was conducted in late 1957, is the old village site, characterized by rectangular house-platforms (*paepae*) in the main of stone, sometimes of earth.

These old village sites constitute a most promising field for research. They exhibit impressive regularity of layout and one pattern observed is that of a majority of platforms of uniform size dominated by a few larger ones. In some cases the presence of visible remnants of the original kerbstones defining the house perimeter enables the house plan to be reconstructed. Village sites are sometimes frequent within a limited area, and the existence of often precise traditional information about them offers the possibility of reconstructing with some accuracy the nature of the old settlement pattern. The picture seems to be that the old sites are the forerunners of the villages now situated almost without exception on the coast, and that their frequency is a reflection of complex changes of site for reasons which at present escape us. The traditional information relevant to this problem consists of the memory of the name and ownership of certain sites; of the *matai* titles held there and of how many generations they were held; and of how many generations the relevant titles have been held in the existing village. The necessary enquiries often involve questions of family status within the village, however, and may involve lengthy and sometimes fruitless work.

Though such a persistent and impressive feature of the Samoan cultural landscape, the old village sites daunt the hopeful excavator. They are large and they look culturally barren. There are no obvious refuse heaps associated with them. Indeed, as a whole, Upolu lacks the kitchen middens with shell whose investigation has proved so fruitful elsewhere in the area under review.

It was by great good fortune therefore that a bulldozer cut (into a house-mound on an old village site east of Apia) had exposed a dark habitation layer sealed in by the mound above.

Under excavation this layer produced pottery, the first and so far the only pottery to be reported from Samoa, associated with two unfinished West Polynesian adzes of Duff type 2C and a large number of postholes exhibiting no pattern. A further adze, of Duff type 4E, was found out of context at the bottom of the bulldozer cut. Three radiocarbon dates from charcoal samples collected from the top and bottom halves of the layer and from a pit beneath it (A.D.  $109 \pm 50$ , A.D.  $79 \pm 120$ ) fix the main occupation securely in the first century.

The pottery, in the main thick and heavily grouted with basaltic grit, but including a finer, thinner ware, is undecorated and restricted in form. The dominant form is a simple bowl with flat-lipped rim, common also on the Tongan sites where, however, the pottery in vessel and rim form is extremely varied.

This is a single and limited excavation, the artifacts recovered from it not numerous and not varied. The implications of the discoveries need substantiation but would appear to be these: that: *i.* Western Polynesian adze traditions were established early in the settlement of Western Polynesia; *ii.* at this stage pottery belonged to the Western Polynesian culture complex; *iii.* both adzes and pottery belong to the same tradition as those of Tonga.

### *The Conclusions so far*

If the above observations are correct, we can propose for the S.W. Pacific some early community of culture linking New Caledonia, Tonga, and Samoa, antedating (on present evidence) the 'Melanesian' cultures of the first and ancestral to the historic Western Polynesian cultures of the other two. This community is expressed in terms of variants of the same pottery tradition and should logically, on the basis of discoveries in Samoa and observations on Tonga, be expressed in terms of adzes too. But no associated adzes have been found in the New Caledonian sites.

This suggestion of a community of culture gains support from the discovery of the relevant pottery on a sand-dune site near Sigatoka, S.W. Viti Levu, Fiji, which becomes therefore an important site for investigation. It is also supported by somewhat older and more distant discoveries made on the little island of Vuatom near Rabaul, New Britain. Here allegedly related pottery is said to be accompanied by adzes of quadrangular cross-section of non-Melanesian type.

At this point serious claims for relationship must cease. But the pottery from the Central Celebes figured by van Heekeren (1957) has decoration suggestively similar to that we have been discussing; while triangular sectioned adzes from Java and so-called roof shaped adzes from Ambon could be suggested as the prototypes of Duff types 4E and 2C, the adzes of Western Polynesia.

Another consideration must be mentioned before this section is concluded. At all sites in Tonga and New Caledonia where the pottery of distinctive decoration has occurred, a proportion of sherds, much smaller in New Caledonia, much larger in Tonga, than the proportion of distinctively decorated pieces, has been found with quite different ornamentation. This is cord decoration applied by cord wound paddle to the surface of the pot, and it occurs in the excavated Fijian sites in both upper and lower levels and at some of the other New Caledonian sites. It is a type of decoration widely known in S.E. Asia and beyond, and its relationship to the distinctive pottery with which it occurs is a problem for the future.

### NEW ZEALAND

Whatever the necessary re-definition, as a result of archaeological effort, of the content of what ethnologists have reconstructed as Western and Eastern Polynesian culture, and despite the essential reformulation of these entities as culture traditions

and not culture areas, there seems to be validity in the traditional Polynesian dichotomy in terms of the at present most widespread and best known culture indicator, the adze. Western Polynesian adze traditions seem well established in Western Polynesia, by the birth of Christ, and perhaps derive from West Indonesian prototypes. They display no sign of one of the characteristic features of East Polynesian adzes, the lashing grip, whose origin must be sought in the Philippines and East Asia.

The origins at least of New Zealand prehistory fall within the East Polynesian cultural sphere. The characteristics of New Zealand's earliest inhabitants, traditionally called Moa-hunters, because the flightless birds called moas frequently played a substantial role in their economy, have been well established as a result of Duff's work at the rich site on the Wairau bar at the north eastern end of the South Island (Duff 1956). Their distinctive equipment of adzes (commonly gripped and in a variety of cross-sections), fishing gear (one piece bait-hooks with unbarbed straight but much more commonly inturned point; lure-hooks with shank typically triangular in section and unbarbed point typically perforated for lashing), and ornaments (necklaces of so-called reel units and of conventionalized whale-teeth units) is well distributed throughout both islands. Pre-war and more recent excavations in the southern part of the South Island have documented the variations which the material culture of the Moa-hunters displays in its most southerly region (for example a sophisticated flake-tool industry, the slate knife of *ulu* type, and lure-hook points with projections not perforations for lashing), without as yet being able to explain their origins. Within the last five years excavations in the northern half of the North Island have uncovered Moa-hunter assemblages of a type quite close to the Wairau Bar site itself.

Radiocarbon dates show Moa-hunter communities well-established at points along the entire east N. Z. coast by A.D. 1200-1300 and we must presume the first settlement to have been considerably earlier. The earliest date so far is an 11th century one for Long Beach near Dunedin in the far south. It is generally presumed that the North Island was settled first, if only because of the presence of obsidian of North Island provenance on some early South Island sites. Recently in the North Island a site has been discovered fully 2 ft. below an undisturbed ash fall layer from the Kaharoa eruption of c. A.D. 1150.

Some of the most interesting recent work has concerned the economy of Moa-hunter communities (Golson 1959*a*, Lockerbie 1959).

1. Ten years ago, on the basis of the Wairau bar discoveries, Duff suggested that the large moa genera *Dinornis* and *Pachyornis* were extinct in New Zealand before ever man came along; that the only moa to exist in significant numbers at his arrival was *Euryapteryx*; and that the contemporaneity of man with any kind of moa over most of the North Island was not proved.

Recent work as shown, not only that man was indeed a contemporary of the moa in the North Island, but that in both islands he was a contemporary of the full range of moa genera. It now becomes clear that whatever the presumed effects of climatic and genetic change, the major cause of moa extinction was the advent of Polynesian man, the hunter.

Nor was this extinction as speedy as commonly supposed. Lockerbie has shown that the large moa survived in the far south until the 17th century, while North Island sites with *Dinornis* are dated to the 14th century.

Lockerbie's sites are interesting in that they span the period from moa abundance in the 12th century to moa scarcity in the 17th, when abundant shell in the relevant layers reflect the changing basis of subsistence from land based to sea derived foods.

2. This change took place in an environment in present climatic conditions impossible for Polynesian agriculture. The same climatic limitations did not apply to the North Island, but the question here has been whether the Mao-hunters knew agriculture at all. In Maori tradition, agriculture is said not to have been known until the advent of a migration popularly known as the Fleet and dated on genealogical evidence to the 14th century.

Evidence for Polynesian agriculture is sparse in the archæological record, and the best in New Zealand is without doubt the storage pit for sweet potato (a specifically Maori agricultural adaptation). Excavations at the North Island site have circumstantially linked the use of small square and rectangular pits too small for habitation to the Moa-hunter occupation of the neighbouring beach, dated to the earlier 14th century. The function of the structures in question as stores for cultivated plants is not proven, however, though probable and the entire question must remain open.

The issue as to whether agriculture was brought by the first inhabitants of New Zealand is one of some importance for the culture history of the country. If it were not, we must invoke, as the traditions do, a separate migration to introduce it.

Renewed migration to New Zealand from Polynesia, such as Maori tradition claims, is indeed invoked by some workers to explain certain of the differences between the Maori at European arrival and the Moa-hunter as archæologically reconstructed. Such would be stone weapons of the *patu* type, fortifications and cannibalism, none of which have been indisputably established for a Moa-hunter site. Such also the two-piece bait-hook with barbed point dominant amongst Maori fishing tackle at European arrival. All these things have their analogues in Polynesia and should they be proved not to have been part of the cultural equipment of the pioneers, must have been introduced at a later date.

Other traits by which the Maori is to be distinguished from the Moa-hunter have as yet no instanced prototypes in tropical Polynesia and may be considered uniquely N. Z. contributions: the *Kahawai* lure with its barbed point lashed to wooden shank and perhaps the gripless, quadrangular sectioned, fully polished Maori adze to which, from the gripped quadrangular adze of the Moa-hunter, a theoretical line of development can be illustrated with adzes present in museum collections.

The necessary field and typological work has only just begun that will test these hypotheses. In the latter case the alleged developments must be shown to have taken place: in the former the alleged absences must be shown to be real. At present we have no precise definition, through lack of excavation of relevant sites, of what in archæological terms Maori culture is; there is some evidence, admittedly small, circumstantial and not impressive, that can be quoted to suggest that the traits allegedly unknown to the Moa-hunter may not indeed have been so.

These considerations of process in New Zealand prehistory have led me to propose (Golson 1959*a*) a new scheme for the organization of New Zealand prehistory. This involves the suspension of judgment on the relationship of Moa-hunter and Maori, and their alternative future description as phases of the same Eastern Polynesian Culture, or as sub-cultures hiving off at different times from the ancestral culture in the tropics, depending on whether New Zealand should prove to have been settled once or more than once. In the first case Archaic is proposed as a replacement for Moa-hunter since demonstrably culturally the Moa-hunter outlived the moa, and Classic Maori is adopted for the immediately pre-contact situation. In the second case the terms Eastern Polynesian I and II are suggested as the sub-cultural nomenclature.

Some efforts have been made to span the Archaic-Classic Maori gap, sometimes with surprising results. At a site near Auckland, on the island of Motutapu a well-stratified site containing 4 ft. to 5 ft. of culturally rich deposit, lying above the ash of a geologically recent eruption and below 3 ft. of blown sand, seemed to promise the hoped for transition. In the result the remains proved to be Archaic throughout and the including dates, established by radiocarbon, the surprisingly late ones of c. A.D. 1200 and c. A.D. 1670.

The evidence in the Auckland and contiguous areas suggests that the Archaic persisted as long here as it did in Lockerbie's terminal South Island situation. Present surveys and excavation, following these clues, have pushed the search for Classic Maori origins further south into the areas where, perhaps significantly, the traditions of 14th century canoe migration are best developed.

As a conclusion we may note that the last decade has seen great advances in the organization of New Zealand archæology. The young and lusty New Zealand Archæological Association, with its quarterly *Newsletter* and annual conferences, stimulates and guides the activities of a large body of amateur workers and co-ordinates them with the work of museum ethnologists (for long the mainstay of New Zealand culture historical research) and of workers in the newer departments of anthropology at two of four N. Z. universities. In this sense the future of New Zealand archæology seems assured, though in a different sense its future depends on the archæological exploitation of the tropical Polynesian field, of which it is but a southern outpost but to whose elucidation New Zealand hopes it has something to contribute.

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